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Current Trends

Human T-Lymphotropic Virus Type III/Lymphadenopathy-Associated Virus Antibody Prevalence in U.S. Military Recruit Applicants

From October 1, 1985, through March 31, 1986, as part of medical evaluation of individuals volunteering for military service, the U.S. Department of Defense tested 308,076 recruit applicants for serologic evidence of infection with human T-lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV), the etiologic retrovirus of acquired immunodeficiency syndrome (AIDS).* Blood samples were obtained at 71 Military Entrance Processing Stations. The screened population consisted predominately of young adults in their late teens (54%) and early twenties (33% were 20-25 years old). Eighty-five percent were male, and 77% were white. Sera were tested by a single contracting laboratory using a commercial human T-lymphotropic virus type III (HTLV-III) enzyme-linked immunosorbent assay (ELISA) test (Electronucleonics, Inc.). All samples repeatably reactive by ELISA were also subjected to confirmation testing by the Western blot. Blots were considered positive if antibod ies to gp 41 and/or p24+p55 were detected. Recruit applicants with confirmed HTLV-III/LAV antibody are excluded from military service.

The mean prevalence of confirmed positive tests was 1.5 per 1,000 recruit applicants. Antibody prevalence increased progressively with age (Table 1), a pattern consistent throughout the country (Table 2). The seroprevalence was higher among the 265,361 men of all ages, 1.6/1,000, than among the 42,715 women, 0.6/1,000. The ratio of male-to-female prevalence rates was 3:1. Prevalence also varied by race: for the 237,586 whites, the rate was 0.9/1,000; for the 55,185 blacks, 3.9/1,000; and for the 15,305 applicants of other racial groups, 2.6/1,000. The relationships of seroprevalence rates by sex and race remain when the data are adjusted by age.

Seroprevalence rates (Table 2) were highest in the coastal regions of the country other than New England. Rates were lowest in New England and in the inland regions. Based on preliminary analysis by county, the highest HTLV-III antibody rates were found in recruit applicants from major urban centers and lowest in those from rural areas.

Reported by the Health Studies Task Force, Office of the Assistant Secretary of Defense (Health Affairs); Dept of Virus Disease, Div of Preventive Medicine, Walter Reed Army Institute of Research; Surveillance and Evaluation Br, AIDS Program, Center for Infectious Disease, CDC.

Editorial Note: Although there is considerable knowledge regarding the distribution of

*The AIDS virus has been variously termed human T-lymphotropic virus type III (HTLV-III), lymphadenopathy-associated virus (LAV), AIDS-associated retrovirus (ARV), or human immunodeficiency virus (HIV). The designation human immunodeficiency virus (HIV) has recently been proposed by a subcommittee of the International Committee for the Taxonomy of Viruses as the appropriate name for the retrovirus that has been implicated as the causative agent of AIDS) (Science 1986;232:697).

HTLV-III/LAV — Continued

reported cases of AIDS in the United States (*1*), there has been much less information about the prevalence of infection with HTLV-III/LAV. Studies of HTLV-III/LAV antibody prevalence have primarily involved selected high-risk groups, including homosexual men (24%-68% positive) (*2-5*), intravenous (IV) drug abusers (2%-72% positive) (*6-8*), and hemophilia patients (40%-88% positive) (*9-11*). The limited published data from blood-bank screening programs, where persons in high-risk groups are specifically discouraged from donating, indicate a confirmed antibody prevalence nationally of less than 0.4/1,000 (*12*).

The Department of Defense medical evaluation program provides additional information on the geographic and demographic factors associated with HTLV-III/LAV infection in the United States. The population of individuals volunteering for military service may not be representative of the U.S. population at large due to the spontaneous, if partial, self-exclusion of hemophilia patients, actively homosexual men, and current IV drug abusers. However, the data suggest the following: (1) While the highest seroprevalence occurs among those over 25 years old, the age of acquisition of confirmed antibody (and by implication, infection) can often be in the late teens and early twenties. Age at diagnosis of reported AIDS is older, with a

TABLE 1. Prevalence of HTLV-III/LAV antibody* among military recruit applicants, by age — United States, October 1985-March 1986

Age (yrs)	No. tested	Positives/1,000†
17	59,113	0.2
18	61,452	0.4
19	43,978	0.8
20	29,835	1.1
21-25	73,998	2.5
≥26	39,700	4.4
All ages	**308,076**	**1.49**

*Western blot confirmed.

†Rates/1,000 tested.

TABLE 2. Prevalence of HTLV/III antibody* per 1,000 military recruit applicants tested, by region and age group — United States, October 1985-March 1986

Region†	No. tested	Age group (yrs) 17-20	21-25	≥ 26	All ages
New England	14,131	0.3§	1.0§	1.9§	0.6
Mid-Atlantic	43,196	0.9	4.4	10.1	2.8
E.N. Central	55,943	0.2	2.0	2.2	0.8
W.N. Central	26,850	0.2§	1.1§	1.4	0.6
S. Atlantic	50,854	0.7	3.3	5.7	1.9
E.S. Central	21,027	0.4§	2.2	1.1§	0.9
W.S. Central	34,782	0.7	2.5	2.6	1.4
Mountain	19,015	0.3§	1.8	2.6	1.1
Pacific	39,260	0.7	1.5	4.7	1.5
All¶	**308,076**	**0.5**	**2.5**	**4.4**	**1.5**

*Western blot confirmed.

†Defined in notifiable diseases table (Table III).

§Rate based on five or fewer positives.

¶Includes data from Puerto Rico, Virgin Islands, Guam, American Samoa, Northern Marianas, and the Trust Territories.

HTLV-III/LAV – Continued

median of 32-35 years, depending on risk group, race, and sex. Only 0.7% of reported cases among adults/adolescents occur between 13 and 20 years of age; 6.5% develop between 21 and 25 years; the remaining 92.8% are diagnosed at or after 26 years of age. (2) The ratio of seroprevalence between male and female recruit applicants is 3:1. This is much lower than the ratio of 13:1 observed among all AIDS cases, but like the 3:1 ratio among other AIDS patients if homosexual and hemophilia-associated cases are excluded. (3) The ratio of seroprevalence rates of black to white recruit applicants (4:1) is intermediate between the 2.6 relative risk for blacks among all AIDS patients (25.2% of cases are among non-Hispanic blacks, who comprise 11.5% of the population [*13*]) and the 8.3 relative risk for blacks among AIDS patients not associated with either homosexuality or hemophilia (blacks comprise 52.0% of these cases). The data do not yet permit a detailed analysis of seroprevalence differences by Hispanic ethnicity. (4) The geographic distribution of seroprevalence among recruits is generally consistent with the incidence of cases, both by region and by urban versus rural residence. More detailed geographic analysis will be possible when cumulative data are available from screening additional recruits.

As in the case with serologically positive blood donors (*14*), recruit applicants with confirmed positive antibody are informed of their status and its implication regarding infection with HTLV-III/LAV; they are counseled on reducing the risk of transmission to others through sexual contact, sharing IV needles, or other exchanges of blood or body fluids.

Counselling and testing for HTLV-III/LAV antibody should be offered to persons who may have already been infected as a result of intimate contact with the seropositive recruit applicant (i.e., sexual partners, persons with whom needles have been shared, infants born to seropositive mothers). In addition, seropositive individuals should be interviewed by an experienced investigator to determine their risk factors for infection. This, coupled with observation on suitable controls, would facilitate determining modes of acquisition and evaluating current trends in risk of exposure to the virus in these populations.

The continued analysis of data emerging from the HTLV-III/LAV serologic screening of military recruit applicants will permit the examination of the extent and the trends over time of infection with the causative agent of AIDS in this sentinel population.

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TABLE I. Summary—cases specified notifiable diseases, United States

Disease	26th Week Ending			Cumulative, 26th Week Ending		
	June 28, 1986	June 29, 1985	Median 1981-1985	June 28, 1986	June 29, 1985	Median 1981-1985
Acquired Immunodeficiency Syndrome (AIDS)	256	85	N	6,146	3,604	N
Aseptic meningitis	168	206	145	2,424	2,198	2,198
Encephalitis: Primary (arthropod-borne & unspec.)	17	20	19	375	458	458
Post-infectious	2	1	3	54	70	54
Gonorrhea: Civilian	14,542	18,303	17,970	406,137	401,354	437,841
Military	390	271	400	7,794	9,280	11,879
Hepatitis: Type A	372	426	426	10,811	10,628	10,701
Type B	452	491	460	12,566	12,456	11,658
Non A, Non B	67	92	N	1,745	2,056	N
Unspecified	97	116	116	2,368	2,782	3,609
Legionellosis	20	5	N	266	329	N
Leprosy	6	14	7	135	196	118
Malaria	16	17	25	409	385	399
Measles: Total*	153	89	59	3,921	1,839	1,786
Indigenous	141	85	N	3,726	1,538	N
Imported	12	4	N	195	301	N
Meningococcal infections: Total	42	33	51	1,484	1,407	1,690
Civilian	42	33	51	1,482	1,402	1,675
Military	-	-	-	2	5	8
Mumps	118	41	47	2,258	1,910	2,083
Pertussis	44	38	38	1,270	845	845
Rubella (German measles)	6	51	33	292	369	669
Syphilis (Primary & Secondary): Civilian	489	547	571	12,431	12,395	14,905
Military	3	4	4	83	87	183
Toxic Shock syndrome	3	6	N	174	195	N
Tuberculosis	506	527	495	10,419	10,322	11,359
Tularemia	2	3	6	47	73	101
Typhoid fever	4	19	6	127	157	171
Typhus fever, tick-borne (RMSF)	45	34	45	249	243	354
Rabies, animal	82	109	109	2,666	2,546	3,159

TABLE II. Notifiable diseases of low frequency, United States

	Cum 1986		Cum 1986
Anthrax	-	Leptospirosis (Tex. 1, Calif. 1)	20
Botulism: Foodborne	4	Plague	-
Infant (Tex. 1, Calif. 1)	27	Poliomyelitis, Paralytic	-
Other	1	Psittacosis (Upstate N.Y. 1, Oreg. 1, Calif. 1)	40
Brucellosis (Fla. 1)	32	Rabies, human	-
Cholera	-	Tetanus (La. 1)	23
Congenital rubella syndrome	2	Trichinosis (Tex. 2)	16
Congenital syphilis, ages < 1 year	11	Typhus fever, flea-borne (endemic, murine) (N.Y. City 1, Va. 1, Tex. 2)	14
Diphtheria	-		

*Seven of the 153 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending June 28, 1986 and June 29, 1985 (26th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum 1986	1986	Cum 1986	Cum 1986	Cum 1986	Cum 1985	1986	1986	1986	1986	1986	Cum 1986
UNITED STATES	6,146	168	375	54	406,137	401,354	372	452	67	97	20	135
NEW ENGLAND	255	4	13	2	9,923	11,840	6	44	4	10	2	6
Maine	12	-	-	-	454	491	-	2	-	-	-	-
N H	6	1	2	-	247	246	-	-	-	-	-	-
Vt	2	-	2	1	135	143	-	-	1	-	-	-
Mass	134	1	3	-	4,118	4,514	4	15	3	10	1	6
R I	14	2	-	-	818	910	-	4	-	-	1	-
Conn	87	-	6	1	4,151	5,536	2	23	-	-	-	-
MID ATLANTIC	2,417	9	53	5	68,678	60,610	22	35	2	31	-	11
Upstate N Y	238	7	19	3	8,117	7,881	5	9	-	1	-	1
N Y City	1,648	2	12	-	39,856	30,521	-	5	1	30	-	9
N J	366	-	6	-	8,633	9,783	4	13	-	-	-	-
Pa	165	-	16	2	12,072	12,425	13	8	1	-	-	1
E N CENTRAL	372	20	84	8	54,273	56,422	23	47	6	4	9	4
Ohio	67	6	26	2	14,027	14,341	9	7	2	1	4	-
Ind	38	7	11	3	5,839	5,830	6	26	-	2	5	-
Ill	179	-	19	2	14,998	15,446	4	2	3	-	-	3
Mich	71	7	25	1	17,024	15,752	4	12	1	1	-	1
Wis	17	-	3	-	2,385	5,053	-	-	-	-	-	-
W N CENTRAL	114	5	11	8	18,217	19,962	11	6	5	-	1	2
Minn	47	1	7	-	2,490	2,956	4	2	-	-	-	1
Iowa	9	-	4	-	1,859	2,111	-	-	-	-	-	-
Mo	35	1	-	-	9,360	9,461	3	4	4	-	1	-
N Dak	2	-	-	-	155	139	-	-	-	-	-	-
S Dak	1	1	-	-	375	362	1	-	-	-	-	-
Nebr	5	-	-	1	1,280	1,778	-	-	-	-	-	-
Kans	15	2	-	7	2,698	3,155	3	-	1	-	-	1
S ATLANTIC	771	37	54	17	97,998	87,921	43	92	18	6	3	1
Del	12	1	3	-	1,698	1,960	-	2	-	-	-	-
Md	78	4	17	-	12,588	14,155	2	16	2	-	2	-
D C	112	-	-	-	8,178	7,168	-	3	1	-	-	-
Va	85	5	17	1	8,742	9,056	7	9	2	1	1	1
W Va	3	1	7	-	1,166	1,243	-	1	-	-	-	-
N C	38	3	8	1	16,472	16,547	-	5	5	1	-	-
S C	20	-	-	-	9,611	10,749	1	9	-	1	-	-
Ga	89	9	-	1	9,359	-	4	19	1	-	-	-
Fla	334	14	2	14	30,184	27,043	29	28	7	3	-	-
E S CENTRAL	83	11	26	3	34,327	34,182	6	29	3	3	-	1
Ky	15	2	9	1	3,962	3,879	-	3	1	-	-	-
Tenn	46	2	3	1	13,349	13,717	5	18	1	3	-	-
Ala	14	7	13	1	9,606	10,800	-	8	1	-	-	1
Miss	8	-	1	-	7,410	5,786	1	-	-	-	-	-
W S CENTRAL	452	49	39	3	50,791	54,100	35	49	10	21	2	10
Ark	17	-	-	-	4,732	5,127	3	-	-	1	-	-
La	85	3	2	-	8,791	10,925	1	9	1	-	-	1
Okla	20	4	9	-	5,704	5,695	6	9	1	1	2	-
Tex	330	42	28	3	31,564	32,353	25	31	8	19	-	9
MOUNTAIN	166	9	16	1	12,536	12,983	77	38	5	3	1	11
Mont	4	-	-	1	350	359	-	-	-	-	-	-
Idaho	1	-	-	-	430	418	-	-	-	-	1	-
Wyo	4	-	2	-	288	312	-	-	-	1	-	-
Colo	92	1	3	-	3,226	3,925	5	2	-	-	-	3
N Mex	6	-	1	-	1,277	1,485	14	3	-	-	-	-
Ariz	39	5	7	-	4,083	3,860	52	21	4	2	-	5
Utah	8	1	2	-	541	555	1	2	-	-	-	1
Nev	12	2	1	-	2,341	2,069	5	10	1	-	-	2
PACIFIC	1,516	24	79	7	59,394	63,334	149	112	14	19	2	89
Wash	50	3	10	-	4,476	4,543	12	5	1	1	-	12
Oreg	34	-	-	-	2,366	3,081	22	8	1	-	1	-
Calif	1,407	17	67	7	50,387	53,321	115	96	12	18	1	61
Alaska	9	-	2	-	1,471	1,486	-	3	-	-	-	-
Hawaii	16	4	-	-	694	903	-	-	-	-	-	16
Guam	-	-	-	-	74	91	-	-	-	-	-	1
P R	57	1	3	-	1,241	1,803	-	2	-	1	-	7
V I	2	-	-	-	115	247	-	-	-	-	-	-
Pac Trust Terr	-	-	-	-	168	502	2	-	-	3	-	18
Amer Samoa	-	-	-	-	22	-	1	1	-	-	-	1

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending June 28, 1986 and June 29, 1985 (26th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported *		Total									
	Cum. 1986	1986	Cum. 1986	1986	Cum. 1986	Cum. 1985	Cum. 1986	1986	Cum. 1986	1986	Cum. 1986	Cum. 1985	1986	Cum. 1986	Cum. 1985
UNITED STATES	409	141	3,726	12	195	1,839	1,484	118	2,258	44	1,270	845	6	292	369
NEW ENGLAND	26	12	53	-	4	119	106	-	43	1	61	42	-	8	9
Maine	1	2	2	-	-	-	23	-	-	-	2	3	-	-	-
N.H.	1	10	27	-	-	-	6	-	10	-	23	23	-	1	2
Vt.	1	-	-	-	-	-	14	-	2	-	3	2	-	-	-
Mass.	13	-	21	-	3	112	21	-	3	-	16	5	-	4	6
R.I.	4	-	2	-	-	-	15	-	9	-	1	4	-	2	-
Conn.	6	-	1	-	1	7	27	-	19	1	16	5	-	1	1
MID ATLANTIC	44	20	1,247	-	20	169	232	4	110	-	105	72	-	27	153
Upstate N.Y.	12	3	35	-	19	79	73	2	41	-	70	39	-	19	14
N.Y. City	11	10	314	-	1	46	45	-	5	-	3	9	-	5	116
N.J.	7	7	876	-	-	21	29	2	31	-	7	2	-	3	11
Pa.	14	-	22	-	-	23	85	-	33	-	25	22	-	-	12
E.N. CENTRAL	21	23	631	2†	16	414	195	89	1,374	2	183	131	1	18	20
Ohio	6	-	-	2†	10	45	82	-	89	-	74	18	-	-	-
Ind.	2	2	2	-	-	1	17	-	21	-	22	11	-	-	-
Ill.	7	12	409	-	3	259	49	89	916	1	22	20	1	12	5
Mich.	6	9	31	-	-	52	45	-	199	1	22	18	-	4	14
Wis.	-	-	189	-	3	57	2	-	149	-	43	64	-	2	1
W.N. CENTRAL	12	14	203	-	16	9	76	3	70	3	70	66	-	9	19
Minn.	4	3	40	-	4	4	16	-	1	-	31	15	-	-	2
Iowa	1	9	40	-	1	-	10	1	15	-	9	3	-	1	1
Mo.	4	2	17	-	6	2	25	2	14	-	5	13	-	1	7
N. Dak.	-	-	13	-	1	2	-	-	2	-	3	8	-	-	2
S. Dak.	-	-	-	-	-	-	4	-	1	3	11	1	-	-	-
Nebr.	2	-	-	-	-	-	8	-	-	-	-	4	-	-	-
Kans.	1	-	93	-	4	1	13	-	37	-	11	22	-	7	7
S. ATLANTIC	52	1	390	-	50	202	290	6	129	29	458	179	-	9	31
Del.	-	-	1	-	-	-	1	-	-	-	219	-	-	-	1
Md.	10	-	19	-	8	44	38	-	10	21	97	75	-	-	1
D.C.	-	-	-	-	-	3	4	-	-	-	-	-	-	-	-
Va.	10	1	25	-	24	19	50	1	25	1	16	5	-	-	1
W. Va.	2	-	2	-	-	31	3	1	34	5	10	1	-	-	9
N.C.	4	-	1	-	1	9	48	1	12	2	20	9	-	-	-
S.C.	3	-	274	-	-	-	25	-	11	-	5	-	-	-	3
Ga.	5	-	56	-	14	8	45	-	12	-	74	57	-	-	-
Fla.	18	-	12	-	3	88	76	3	25	-	17	32	-	9	16
E.S. CENTRAL	11	15	43	-	-	1	83	1	20	1	22	9	-	1	2
Ky.	2	-	-	-	-	-	17	-	3	-	1	3	-	1	2
Tenn.	-	15	41	-	-	-	33	1	14	-	5	2	-	-	-
Ala.	6	-	-	-	-	-	23	-	2	1	16	2	-	-	-
Miss.	3	-	2	-	-	1	10	-	1	-	-	2	-	-	-
W.S. CENTRAL	35	10	506	-	28	266	121	5	137	2	96	133	-	52	22
Ark.	-	-	276	-	2	-	16	-	7	1	6	12	-	-	1
La.	4	1	2	-	-	32	17	-	2	1	6	5	-	-	-
Okla.	5	-	10	-	2	-	16	N	N	-	56	79	-	-	1
Tex.	26	9	218	-	24	234	72	5	128	-	28	37	-	52	20
MOUNTAIN	15	7	269	1	23	466	77	5	188	3	125	39	1	17	4
Mont.	-	-	1	-	7	137	7	-	5	-	5	3	-	1	-
Idaho	1	-	1	-	-	124	2	-	4	-	27	-	-	-	1
Wyo.	-	-	-	-	-	-	2	-	-	-	1	-	-	-	-
Colo.	4	-	2	-	5	6	12	2	11	2	38	10	-	1	-
N. Mex.	1	-	26	1†	6	3	6	N	N	1	12	5	-	-	2
Ariz.	5	7	238	-	5	196	15	3	156	-	28	13	1	2	1
Utah	2	-	1	-	-	-	11	-	9	-	14	8	-	10	-
Nev.	2	-	-	-	-	-	22	-	3	-	-	-	-	3	-
PACIFIC	193	39	384	9	38	193	304	5	187	3	150	174	4	151	109
Wash.	14	7	77	8†§	22	32	44	-	7	1	52	24	2	8	11
Oreg.	13	-	-	-	4	3	22	N	N	1	9	21	-	-	1
Calif.	166	32	288	1§	11	140	228	5	166	-	82	115	2	141	63
Alaska	-	-	-	-	-	-	9	-	5	-	2	11	-	-	1
Hawaii	-	-	19	-	1	18	1	-	9	1	5	3	-	2	33
Guam	1	-	3	-	-	10	-	-	4	-	-	-	-	2	1
P.R.	4	-	18	-	-	46	2	-	20	-	7	5	-	58	21
V.I.	-	-	-	-	-	10	-	1	11	-	-	-	-	-	-
Pac. Trust Terr.	-	-	-	-	-	-	1	1	5	-	-	-	-	-	-
Amer. Samoa	-	-	2	-	-	-	-	-	1	-	-	-	-	1	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending June 28, 1986 and June 29, 1985 (26th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1986	Cum. 1985	1986	Cum. 1986	Cum. 1985	Cum. 1986	Cum. 1986	Cum. 1986	Cum. 1986
UNITED STATES	12,431	12,395	3	10,419	10,322	47	127	249+44	2,666
NEW ENGLAND	258	275	-	324	336	-	6	2	3
Maine	15	8	-	27	24	-	-	-	-
N.H.	10	6	-	9	14	-	-	-	-
Vt.	6	3	-	10	4	-	-	-	-
Mass.	130	143	-	150	197	-	5	1	-
R.I.	16	7	-	24	32	-	-	-	1
Conn.	81	108	-	104	65	-	1	1	2
MID ATLANTIC	1,807	1,726	-	2,070	1,869	-	13	7	190
Upstate N.Y.	88	117	-	306	312	-	2	1	36
N.Y. City	1,020	1,066	-	1,027	940	-	5	2	-
N.J.	336	357	-	377	229	-	5	1	8
Pa.	363	186	-	360	388	-	1	3	146
E.N. CENTRAL	514	584	-	1,302	1,213	-	8	42+8	63
Ohio	70	74	-	214	213	-	1	41 8	5
Ind.	58	61	-	143	155	-	-	-	10
Ill.	284	303	-	574	536	-	1	1	20
Mich.	75	115	-	310	246	-	5	-	11
Wis.	27	31	-	61	63	-	1	-	17
W.N. CENTRAL	124	121	1	300	283	13	5	15+2	430
Minn.	20	28	-	78	58	-	1	1	45
Iowa	6	14	-	23	38	1	-	-	97
Mo.	68	55	-	148	132	10	4	5	48
N. Dak.	2	1	-	4	2	-	-	-	105
S. Dak.	2	4	-	13	15	2	-	3 2	89
Nebr.	11	6	1	5	9	-	-	3	9
Kans.	15	13	-	29	29	-	-	3	37
S. ATLANTIC	3,421	3,080	1	2,030	2,152	6	14	105+25	652
Del.	27	17	-	21	19	-	-	1	-
Md.	219	204	-	142	197	1	4	12 5	346
D.C.	169	184	-	70	94	-	1	-	-
Va.	200	155	1	173	187	2	3	19 4	98
W. Va.	11	8	-	59	50	-	2	4	13
N.C.	252	339	-	298	259	1	2	33 10	4
S.C.	314	399	-	264	297	-	-	29 5	23
Ga.	383	-	-	281	330	2	-	7 1	87
Fla.	1,846	1,774	-	722	719	-	2	-	81
E.S. CENTRAL	878	1,020	-	921	951	6	1	35+8	150
Ky.	43	34	-	231	207	2	-	5	50
Tenn.	322	297	-	283	296	3	-	15 6	56
Ala.	275	316	-	296	297	1	-	8 2	44
Miss.	238	373	-	111	151	-	1	7	-
W.S. CENTRAL	2,642	3,086	-	1,316	1,207	19	8	37+1	437
Ark.	133	160	-	173	128	11	-	2	104
La.	428	550	-	228	179	1	-	-	12
Okla.	70	90	-	117	133	5	1	28 1	37
Tex.	2,011	2,286	-	798	767	2	7	7	284
MOUNTAIN	301	392	1	234	248	2	7	6	416
Mont.	6	2	-	10	29	-	1	3	149
Idaho	5	3	-	10	11	-	-	-	-
Wyo.	-	6	-	-	5	-	-	1	194
Colo.	79	91	1	13	30	-	1	2	-
N. Mex.	40	62	-	53	49	1	-	-	4
Ariz.	131	203	-	112	105	-	2	-	68
Utah	9	4	-	21	6	1	2	-	-
Nev.	31	21	-	15	13	-	1	-	1
PACIFIC	2,486	2,111	-	1,922	2,063	1	65	-	325
Wash.	52	64	-	98	116	-	3	-	2
Oreg.	56	44	-	69	71	-	-	-	-
Calif.	2,357	1,960	-	1,626	1,715	-	58	-	315
Alaska	-	2	-	27	66	1	1	-	8
Hawaii	21	41	-	102	95	-	3	-	-
Guam	1	2	-	30	23	-	-	-	-
P.R.	438	409	-	147	164	-	3	-	25
V.I.	-	1	-	1	1	-	-	-	-
Pac. Trust Terr.	144	49	-	28	35	-	39	-	-
Amer. Samoa	-	-	-	3	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending June 28, 1986 (26th Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	653	442	117	45	29	20	65
Boston, Mass.	185	113	35	20	7	10	30
Bridgeport, Conn.	39	31	6	1	1	-	2
Cambridge, Mass.	39	36	3	-	-	-	5
Fall River, Mass.	20	15	4	1	-	-	-
Hartford, Conn.	55	33	13	4	5	-	1
Lowell, Mass.	27	19	4	2	1	1	2
Lynn, Mass.	10	7	2	1	-	-	-
New Bedford, Mass.	15	13	1	1	-	-	2
New Haven, Conn.	42	28	7	3	3	1	3
Providence, R.I.	83	53	17	3	5	5	7
Somerville, Mass.	3	2	1	-	-	-	-
Springfield, Mass.	46	32	6	4	2	2	6
Waterbury, Conn.	30	19	7	1	2	1	2
Worcester, Mass.	59	41	11	4	3	-	5
MID ATLANTIC	2,583	1,608	605	239	70	61	110
Albany, N.Y.	44	26	10	3	1	4	2
Allentown, Pa.	21	17	3	1	-	-	-
Buffalo, N.Y.	105	79	18	4	1	3	7
Camden, N.J.	39	18	10	4	5	2	1
Elizabeth, N.J.	22	16	6	-	-	-	-
Erie, Pa.†	35	22	11	2	-	-	2
Jersey City, N.J.	46	21	12	4	3	6	1
N.Y. City, N.Y.	1,428	844	346	168	37	33	53
Newark, N.J.	64	32	17	10	3	2	5
Paterson, N.J.	21	11	4	5	1	-	2
Philadelphia, Pa.	296	202	69	19	2	4	15
Pittsburgh, Pa.†	75	47	20	3	1	4	3
Reading, Pa.	34	24	5	3	2	-	3
Rochester, N.Y.	129	87	30	7	4	1	6
Schenectady, N.Y.	24	18	4	1	1	-	-
Scranton, Pa.†	12	11	1	-	-	-	-
Syracuse, N.Y.	90	61	21	3	3	2	5
Trenton, N.J.	32	19	9	1	3	-	-
Utica, N.Y.	29	20	6	-	3	-	-
Yonkers, N.Y.	37	33	3	1	-	-	5
E.N. CENTRAL	2,215	1,422	469	163	71	90	81
Akron, Ohio	56	38	6	4	3	5	-
Canton, Ohio	28	16	6	5	1	-	1
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio§	131	87	27	7	6	4	10
Cleveland, Ohio	168	101	37	14	6	10	1
Columbus, Ohio	131	88	31	6	5	1	4
Dayton, Ohio	110	77	27	5	1	-	1
Detroit, Mich.	244	128	53	36	12	15	7
Evansville, Ind.	27	18	6	1	-	2	-
Fort Wayne, Ind.	74	49	15	3	2	5	8
Gary, Ind.	15	7	5	2	-	1	-
Grand Rapids, Mich.	52	33	11	5	3	-	1
Indianapolis, Ind.	177	105	32	18	11	11	2
Madison, Wis.	34	22	6	2	2	2	6
Milwaukee, Wis.	113	89	19	2	1	2	2
Peoria, Ill.	51	35	7	5	1	3	2
Rockford, Ill.	55	31	14	2	3	5	8
South Bend, Ind.	43	32	10	-	1	-	5
Toledo, Ohio	96	68	23	1	2	2	6
Youngstown, Ohio	46	36	9	-	1	-	1
W.N. CENTRAL	714	469	148	47	21	29	36
Des Moines, Iowa	55	36	18	1	-	-	4
Duluth, Minn.	25	18	3	3	-	1	1
Kansas City, Kans.	40	24	6	6	2	2	2
Kansas City, Mo.	138	92	27	8	9	2	7
Lincoln, Nebr.	20	10	6	1	-	3	-
Minneapolis, Minn.	77	47	22	5	1	2	1
Omaha, Nebr.	78	52	21	2	1	2	6
St. Louis, Mo.	131	89	18	11	5	8	8
St. Paul, Minn.	65	45	12	1	2	5	1
Wichita, Kans.	85	56	15	9	1	4	6

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,252	742	286	120	41	60	47
Atlanta, Ga.	156	85	32	18	6	15	4
Baltimore, Md.	244	140	62	19	11	12	3
Charlotte, N.C.	89	51	21	10	3	3	5
Jacksonville, Fla.	101	59	23	10	6	3	2
Miami, Fla.	104	62	24	16	-	2	1
Norfolk, Va.	44	23	12	5	1	3	5
Richmond, Va.	76	49	19	5	2	1	7
Savannah, Ga.	38	24	8	5	-	1	1
St. Petersburg, Fla.	111	91	15	2	2	1	6
Tampa, Fla.	75	49	15	5	1	4	6
Washington, D.C.	190	88	55	23	9	14	6
Wilmington, Del.	24	21	-	2	-	1	1
E.S. CENTRAL	802	496	193	56	29	28	46
Birmingham, Ala.	126	82	28	8	1	7	1
Chattanooga, Tenn.	63	44	11	7	1	-	9
Knoxville, Tenn.	76	52	18	4	2	-	3
Louisville, Ky.	127	74	33	5	11	4	9
Memphis, Tenn.	138	86	35	8	5	4	12
Mobile, Ala.	95	53	23	11	3	5	5
Montgomery, Ala.	54	36	11	4	1	2	2
Nashville, Tenn.	123	69	34	9	5	6	5
W.S. CENTRAL	1,289	772	282	130	55	50	46
Austin, Tex.	65	43	5	8	4	5	2
Baton Rouge, La.	50	32	12	4	2	-	-
Corpus Christi, Tex.	51	29	11	6	4	1	2
Dallas, Tex.	194	112	37	25	13	7	7
El Paso, Tex.	71	46	15	7	1	2	3
Fort Worth, Tex.	73	40	20	11	-	2	6
Houston, Tex. §	302	172	77	33	11	9	5
Little Rock, Ark.	61	39	13	2	2	5	4
New Orleans, La.	115	54	28	16	5	12	-
San Antonio, Tex.	175	120	34	8	9	4	13
Shreveport, La.	44	29	8	3	3	1	2
Tulsa, Okla.	88	56	22	7	1	2	2
MOUNTAIN	627	380	134	50	33	30	26
Albuquerque, N.Mex.	89	57	14	10	5	3	5
Colo. Springs, Colo.	32	26	1	2	3	-	3
Denver, Colo.	112	66	21	13	4	8	2
Las Vegas, Nev.	83	48	27	3	3	2	6
Ogden, Utah	24	15	5	2	2	-	1
Phoenix, Ariz.	118	56	30	10	9	13	3
Pueblo, Colo.	20	16	3	1	-	-	1
Salt Lake City, Utah	55	34	8	3	7	3	1
Tucson, Ariz.	94	62	25	6	-	1	4
PACIFIC	1,864	1,176	371	202	63	49	97
Berkeley, Calif.	18	12	2	3	1	-	-
Fresno, Calif.	105	69	14	7	4	11	5
Glendale, Calif.	35	28	5	2	-	-	1
Honolulu, Hawaii	62	33	15	7	6	1	3
Long Beach, Calif.	69	43	19	3	2	2	8
Los Angeles, Calif.	540	334	111	71	15	6	18
Oakland, Calif.	45	28	6	4	4	3	2
Pasadena, Calif.	31	22	6	2	-	1	2
Portland, Oreg.	132	91	20	11	4	6	4
Sacramento, Calif.	137	87	30	9	7	4	12
San Diego, Calif.	135	81	32	12	7	3	22
San Francisco, Calif.	156	94	28	29	4	1	7
San Jose, Calif.	166	107	37	15	4	3	9
Seattle, Wash.	135	85	25	16	4	5	2
Spokane, Wash.	49	27	13	7	-	2	1
Tacoma, Wash.	49	35	8	4	1	1	1
TOTAL	11,999††	7,507	2,605	1,052	412	417	554

* Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

** Pneumonia and influenza.

† Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†† Total includes unknown ages.

§ Data not available. Figures are estimates based on average of past 4 weeks.

Epidemiologic Notes and Reports

Fatality at a Waterslide Amusement Park — Utah

On August 16, 1985, a 14-year-old male, his younger brother, and two friends went swimming at a large waterslide amusement park in Ogden, Utah. The children were playing in one of the slide-receiving pools (splash pool) where the depth was 4 feet. The 14-year-old (weight 134 lbs. [61.0 kg.], height 5 ft., 2 in. [1.59 meters]) was hanging onto the pool edge, dangling his feet over the submerged opening of the middle of three drain pipes, when he let go and disappeared into the pipe. Once inside the pipe, he was carried horizontally 93 feet, where he lodged in a 90-degree vertical bend inside the pumphouse (Figure 1). After 15 minutes, he was located, but resuscitation attempts were unsuccessful. An autopsy determined the cause of death as drowning.

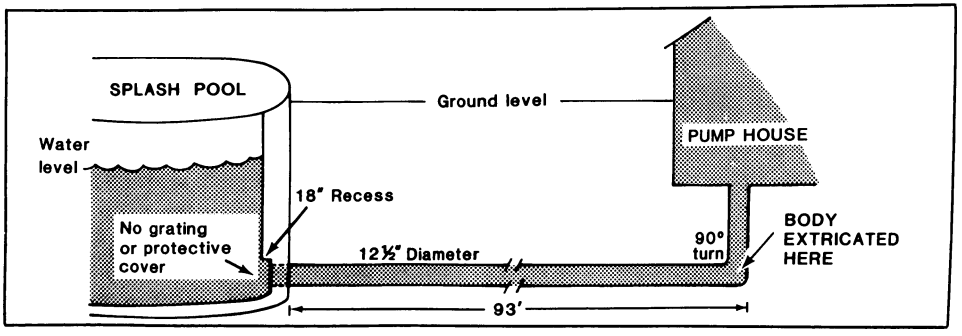
The waterslide park was constructed in 1984. Water from all six slides in the park drained into the splash pool where the boy was playing. The water then traveled by gravity through the three 12½-inch diameter polyvinyl pipes to a pumphouse where it was pumped to the top of the slides. The pipes were located in the side of the pool beneath a recessed overhang. Park employees reported that the cast iron grates covering the pipe inlets repeatedly fell off during the early part of the summer of 1985 because the cement eroded and, thus, was inadequate for holding the anchoring screws. As a result, the grates were removed. There were no other design features of the drainage system to prevent entry into the pipes.

Lifeguards were on duty at the time of the incident. The park was the seventh waterslide park designed by a company in Washington State, and its design met all local and state standards at the date of its opening in 1984. However, the park performed no routine checks of safety items.

An investigation of the death was led by the Weber-Morgan District Health Department, which had the statutory responsibility under Utah Code to "identify injury problems and develop standards for the correction and prevention of future occurrences." The final health department recommendations were (1) any drainage pipe with a diameter greater than 6 inches must have protective grating and backup entrapment prevention features that are approved by the health department before installation; (2) grates must be attached by a corrosive-resistant, secure anchoring system and must be attached so they cannot be removed by bathers; and (3) there must be a written record documenting monitoring of pool safety features.

Reported by M Nichols, MD, C Heninger, R Schwartz, O Orton, Weber-Morgan District Health Dept, S Patterson, Building Inspection, S VanderHeide, Sheriff's Dept, V Gabrenas, Attorney's Office, Weber County, F Jackson, Utah Dept of Health; H Walters, Intermountain Region, US Forest Svc; Div of Injury Epidemiology and Control, Center for Environmental Health, CDC.

FIGURE 1. Schematic of splash-pool drain pipe at waterslide amusement park where fatality occurred — Utah, August, 16, 1985



Waterslide Fatality — Continued

Editorial Note: According to the U.S. Consumer Product Safety Commission (CPSC), this is the third reported death associated with a waterslide amusement park. The first death reported to the CPSC occurred in 1980 and was similar to that reported here: a 13-year-old male became entrapped in an 8-inch by 24-inch pool drain. The other reported fatality was a 35-year-old male who fell off a corkscrew turn in a waterslide.

In most waterslide splash pools, the drainage pipe inlet is too small to allow entrapment. Because six slides were installed, a large volume of water was recirculated, and the pipes draining the Ogden waterslide were unusually large. A safer alternative design would be to have more pipes with smaller diameter.

This problem extends beyond waterslide amusement parks. Since 1983, CPSC has received 10 reports of serious injury and three reported deaths associated with swimming-pool or hot-tub drainage systems. All 13 reports involved children 14 years of age or younger. In six of these incidents, including all three fatalities, the cover to the drain pipe had been removed. In all 13 incidents, the suction holding the child against the drain pipe opening or entangling hair was the primary cause of injury.

Recirculation and drainage systems may remain a source of serious injuries or deaths unless operators ensure that all drainage or recirculation pipes are adequately covered at all times to prevent the possibility of entrapment. Also, adequate safety standards for the design and operation of recreational waterslides, spas and hot tubs, and swimming pools should be adopted by state and local authorities. These standards should focus in particular on proper design features to prevent injuries caused by entrapment.

International Notes

Bat Rabies — Europe

On September 10, 1985, a woman in Denmark was bitten on the finger by an ill-appearing European house bat (*Eptesicus serotinus*) that was captured and later found to be rabid (*1*). This is the first report of rabies virus isolation in bats in Denmark. Subsequently, between September and November 1985, 34 ill bats were submitted for rabies examination to the State Veterinary Serum Laboratory. Ten were positive by fluorescent antibody techniques, and the same rabies virus strain was isolated from nine of these (*1,2*). All these isolates were from *E. serotinus*, the most common of the 14 insectivorous bat species in Denmark.

On October 29, 1985, the first human case of rabies reported in Finland since 1934 was diagnosed in a 30-year-old bat zoologist residing in Helsinki; animal rabies had last been reported in Finland in 1959. The zoologist had been bitten several times by bats while in Malaysia 4½ years earlier; in Switzerland 1 year earlier; and, most recently, in Finland 51 days before the onset of neurologic symptoms. He reported no other animal bites (*3,4*). Although the zoologist worked with the nine bat species found in Finland, he had received neither preexposure nor postexposure immunization against rabies. A virus isolate was obtained postmortem from a brain specimen.

Before 1985, rabies virus had been isolated from only three bats (of unknown species) in Europe, all in the northern part of the Federal Republic of Germany between 1968 and 1982 (*5*). These virus isolates differed from common isolates found in terrestrial animals in Europe but closely resembled two rabies-like viruses from Africa, one of human origin (Duvenhage) and one of bat origin (*6*). Whether the viruses were inadvertently imported from Africa via migrating bats or other means has not been established.

Bat Rabies – Continued

As a result of these episodes, CDC conducted studies to characterize the Danish and Finish virus isolates and to determine whether the Danish bat virus isolates were infectious for experimental animals and whether conventional rabies vaccines could protect against them. Characterization of the European viruses by a moncclonal antibody panel indicated that the Danish isolates were different from terrestrial isolates in Europe but identical to the strains isolated from bats in Germany (*6*). The viruses were similar to the Duvenhage strain first isolated in Africa. Virus isolated from the brain of the Finish zoologist was also characterized by monoclonal antibodies and found to be different from both the European bat isolates and the Duvenhage strain. Experimentally, the Danish bat viruses readily infected mice by the intracerebral, footpad, and oral routes; dogs, by the intracerebral route; and cats, by the intramuscular and intracerebral routes. A human diploid cell vaccine (IMOVAX*), and an animal vaccine (RABISIN*) protected mice against challenges with the Danish bat viruses. Further characterization of the Finnish isolate is in progress.

Reported by V Bitsch, DVM, State Veterinary Serum Laboratory, J Westergaard, DVM, Danish Veterinary Svcs, Copenhagen, Denmark; M Valle, MD, National Public Health Institute, Helsinki, Finland; Viral and Rickettsial Zoonoses Br, Div of Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: In 1985, 829 bats were reported rabid in the United States. In contrast, only 18 rabid bats were reported in Europe between 1954 and 1985 (*1,2,5*). Although the first case of bat rabies was reported in Europe in 1954, bats have not been examined routinely for rabies in European countries. The few reported cases of bat rabies may not be indicative of their importance in Europe.

Human rabies caused by exposure to insectivorous bats has been reported in Canada, the United States, and some Latin American countries (*7*). No cases of human rabies have been known to follow exposures to bats in Europe, with the probable exception of the recent case in Finland. Between 1977 and 1985, 30 cases of human rabies, all from sources other than bats, were reported in Europe; six were imported cases (*8,9*).

Because of the paucity of information on bat rabies in Europe, an informal World Health Organization (WHO) meeting was held in Marburg, Germany, in May 1986. The concensus of the representatives from Denmark, Finland, France, Germany, Poland, Switzerland, CDC, and WHO was that all persons who work with bats in Europe should receive preexposure rabies vaccination, and all persons bitten by bats should receive postexposure treatment according to previously published standard immunization schedules (*10,11*). Bat rabies surveillance has been initiated in all the European countries represented at the meeting.

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*Use of trade names is for identification only and does not imply endorsement by the U.S. Public Health Service or the U.S. Department of Health and Human Services.

Bat Rabies – Continued

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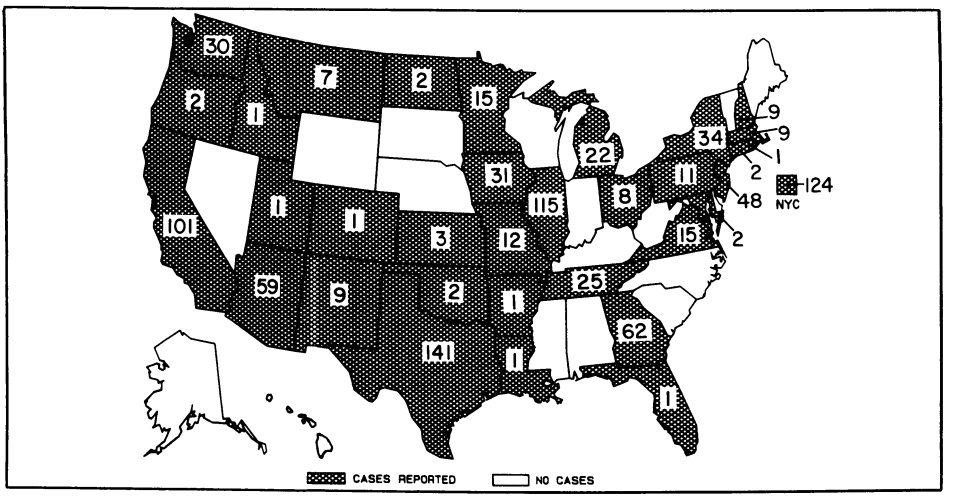
FIGURE I. Reported measles cases — United States, weeks 22-25, 1986



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